High Frequency Titration (I) : On the Acidmetry of the Dibasic Acid

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11. High Frequency Titration. (I)

On the Acidmetry of the Dibasic Acid

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The apparatus was similar as the Jensen's high frequency titrimeter (Ind. Eng. Chem. Anal. Ed., 595, 18, (1946)) except the balancing system; and the operating frequency was about 20 Mc..

This titrimeter could show a sharp end point of the titration curve of the HCl–NaOH acidmetry, and the sensitivity of this titrimeter, in about 10^{-3} N solutions, was very great, but in more concentrated or diluted solutions it was much decreased.

In an oxalic acid–NaOH (NaOH 1 N solution) acidmetry, the titration curve did not show exactly the equivalent point, and a peculiar curve was obtained between the initial point of the titration and the second equivalent point. In an about 0.006 N oxalic acid solution, there appeared a maximum point, and in an about 0.009 N, two minima appeared before and after the maximum, however in more concentrated solution, the maximum disappeared and one minimum point near the first equivalent point was observed.

These peculiarities of the curve were found in homologous acids (malonic acid, succinic acid) and also in the tribasic phosphoric acid titration.

Comparing with the conductivity measurement of the titrated solution, this maximum point in the dilute solution corresponds to the minimum point of the conductivity and roughly coincides with the calculated first equivalent point.

Hence this maximum point may be related to the formation of acidic salt in the course of titration. The disappearance of the maximum point in more concentrated solution may be referred to the dissociation degree of the acid.

On these points, we are now further studying. The authors express their gratitude to Prof. Goto for his valuable advices.

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12. Studies on the Volumetric Analysis by the Use of High Frequency Oscillator. (II)

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Previously, the authors reported on the new apparatus of high frequency titration together with the procedure for the measurement (this Bulletin **25**, 24 (1951)).